

CLAIMS

What is claimed is:

1. A system for monitoring and managing a refrigeration system, the system comprising:

a refrigeration system at a remote location;

a communication network; and

a management center in communication with said refrigeration system through said communication network, said management center receiving information from the remote location regarding performance of the refrigeration system and said management center analyzing said information for altering operation of the refrigeration system.

2. The system of claim 1, wherein said refrigeration system further includes a post processing system in communication with components of the refrigeration system for gathering performance information from said components.

3. The system of claim 2, wherein said components each include a sensor for detecting performance of a respective component.

4. The system of claim 2, wherein said management center is in communication with said post processing system of the remote location.

5. The system of claim 1, wherein said management center includes diagnostic software for analyzing performance of said refrigeration system.

6. The system of claim 1, wherein said management center includes a post processing system in communication with the remote location for gathering performance information of said refrigeration system.

7. The system of claim 6, wherein said post processing system includes data storage for storing said performance information.

8. The system of claim 6, wherein said post processing system includes diagnostic software for analyzing said performance information.

9. The system of claim 8, wherein said diagnostic software includes a program for calculating a food quality index for food within said refrigeration system.

10. The system of claim 9, wherein said program provides an alarm as a function of spoiler bacterial multiplication limits.

11. The system of claim 9, wherein said management center advises manipulation of operation of said refrigeration system of the remote location as a function of a value of said food quality index.

12. The system of claim 8, wherein said diagnostic software includes a program for calculating a bacterial growth for food within said refrigeration system.

13. The system of claim 12, wherein said program provides an alarm as a function of pathogen bacterial multiplication limit.

14. The system of claim 12, wherein said management center advises manipulation of operation of said refrigeration system of the remote location as a function of a value of said food safety index.

15. The system of claim 8, wherein said diagnostic software includes a program for evaluating energy performance of said refrigeration system as a function of said performance information.

16. The system of claim 15, wherein said management center advises manipulation of operation of said refrigeration system of the remote location as a function of an energy performance evaluation.

17. The system of claim 1, further comprising a remote computer in communication with said management center and said refrigeration system, said remote computer capable of remotely monitoring said performance of said refrigeration system.

18. The system of claim 8, wherein said diagnostic software includes a program for determining maintenance measures for components of said refrigeration system.

19. The system of claim 18, wherein said maintenance measures include preventative maintenance measures.

20. The system of claim 18, wherein said maintenance measures include routine maintenance measures.

21. A system for monitoring and managing a refrigeration system of a retail location, the system comprising:

a communication network;

a processing center in communication with the refrigeration system through said communication network, said processing center receiving performance information from the refrigeration system and analyzing said performance information; and

a management center in communication with said refrigeration system through said communication network, said management center receiving said performance information.

22. The system of claim 21, wherein said management center analyzes said performance information.

23. The system of claim 21, wherein said management center receives said performance information from said processing center.

24. The system of claim 21, wherein said refrigeration system further includes a central processing system in communication with components of the refrigeration system for gathering performance information from said components.

25. The system of claim 24, wherein said components each include a sensor for detecting performance of a respective component.

26. The system of claim 24, wherein said management center is in communication with said post processing system of the remote location.

27. The system of claim 21, wherein said management center includes diagnostic software for analyzing performance of said refrigeration system.

28. The system of claim 21, wherein said management center includes a post processing system in communication with the remote location for gathering performance information of said refrigeration system.

29. The system of claim 28, wherein said central processing system includes data storage for storing said performance information.

30. The system of claim 28, wherein said central processing system includes diagnostic software for analyzing said performance information.

31. The system of claim 30, wherein said diagnostic software includes a program for calculating a food quality index for food within said refrigeration system.

32. The system of claim 31, wherein said program provides an alarm as a function of a food quality index limit.

33. The system of claim 31, wherein said management center advises manipulation of operation of said refrigeration system of the remote location as a function of a value of said food quality index.

34. The system of claim 30, wherein said diagnostic software includes a program for calculating a food safety index for food within said refrigeration system.

35. The system of claim 34, wherein said program provides an alarm as a function of a lower food safety index limit.

36. The system of claim 34, wherein said management center advises manipulation of operation of said refrigeration system of the remote location as a function of a value of said food safety index.

37. The system of claim 30, wherein said diagnostic software includes a program for evaluating energy performance of said refrigeration system as a function of said performance information.

38. The system of claim 37, wherein said management center advises manipulation of operation of said refrigeration system of the remote location as a function of an energy performance evaluation.

39. The system of claim 21, further comprising a remote computer in communication with said management center and said refrigeration system, said remote computer capable of remotely monitoring said performance of said refrigeration system.

40. The system of claim 30, wherein said diagnostic software includes a program for determining maintenance measures for components of said refrigeration system.

41. The system of claim 40, wherein said maintenance measures include preventative maintenance measures.

42. The system of claim 40, wherein said maintenance measures include routine maintenance measures.

43. A method monitoring and managing a refrigeration system at a remote location, comprising the steps of:

providing a communication network;

providing a management center in communication with the refrigeration system at a remote location through said communication network;

transmitting refrigeration system performance information from the refrigeration system at a remote location to said management center via said communication network;

analyzing said performance information at said management center; and

altering operation of the refrigeration system in response to said step of analyzing said performance information.

44. The method of claim 43, further comprising the step of diagnosing performance of the refrigeration system at said management center.

45. The method of claim 43, further comprising the step of storing said performance information at said management center.

46. The method of claim 43, further comprising the step of calculating a food quality index using said performance information.

47. The method of claim 46, further comprising the step of alarming as a function of a food quality index unit.

48. The method of claim 46, further comprising the step of alarming as a function of a food safety index.

49. The method of claim 48, further comprising the step of alarming as a function of a food quality index.

50. The method of claim 43, further comprising the step of evaluating energy performance of the refrigeration system as a function of said performance information.

51. The method of claim 43, further comprising the step of determining maintenance measures of the refrigeration system based on said performance information.

52. A method of monitoring and managing a refrigeration system of a retail location, comprising the steps of:

providing a communication network;

providing a processing center in communication with the refrigeration system through said communication network;

providing a management center in communication with the refrigeration system through said communication network;

transmitting refrigeration performance information to said processing center and said management center;

analyzing said performance information at said processing center;

altering operation of the refrigeration system in response to said step of analyzing said performance information.

53. The method of claim 52, further comprising the step of gathering said performance information from components of the refrigeration system.

54. The method of claim 52, said step of transmitting including transmitting said performance information from said processing center to said management center.

55. The method of claim 52, further comprising the step of diagnosing performance of the refrigeration system at said management center.

56. The method of claim 52, further comprising the step of storing said performance information at said management center.

57. The method of claim 52, further comprising the step of calculating a food quality index using said performance information.

58. The method of claim 57, further comprising the step of alarming as a function of a good quality index unit.

59. The method of claim 57, further comprising the step of alarming as a function of a food safety index.

60. The method of claim 57, further comprising the step of alarming as a function of a food quality index.

61. The method of claim 52, further comprising the step of evaluating energy performance of the refrigeration system as a function of said performance information.

62. The method of claim 52, further comprising the step of determining maintenance measures of the refrigeration system based on said performance information.